The surgical treatment of a giant right hepatic artery aneurysm with an aberrant left hepatic artery: Report of a Case

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Received: June 22, 2015; Accepted: July 26, 2015

Keywords: hepatic artery, aneurysm, surgical treatment

Introduction

Hepatic artery aneurysms are rare. We describe a case of a successful surgical treatment of a giant hepatic aneurysm without revascularization. A 63-year-old female was admitted to our department complaining of abdominal pain. Computed tomography showed a thrombosed hepatic artery aneurysm measuring 5.5 cm in diameter. A celiac angiography revealed an aberrant left hepatic artery and a right hepatic aneurysm. Liver blood flow and the right hepatic aneurysm were visualized via collateral pathway from the aberrant left hepatic artery. We performed an aneurysmorrhaphy without revascularization. Postoperative course was uneventful and the patient is doing well 3 months after surgery.

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Case Report

In July 2013, a 63-year-old female patient was admitted to our emergency department with sudden abdominal pain. She had undergone coronary artery bypass graft for angina pectoris and Dor procedure for left ventricular aneurysm. Because of those operations, she required warfarin. She had no history of cholecystitis, pancreatitis, previous abdominal operation and trauma. Abdominal examination revealed a large mass in right upper quadrant and moderate discomfort with deep palpation in the epigastric area. The laboratory data were within normal limit. CT showed an unruptured thrombosed HAA measuring 5.3 × 5.3 cm in diameter. Her symptom improved gradually with administration of antiulcer drugs in a few days, therefore the aneurysm was observed with CT twice a year. Until in July 2014, diameter of the aneurysm did not change. In Feb 2015, she was readmitted to our department with sudden abdominal pain. In this time, she had tender mass in right upper quadrant, and CT showed that the aneurysm grew up to 6.0 × 5.5 cm in diameter without enhancement of contrast medium (Fig. 1). A celiac angiography through the femoral artery was performed. The angiography revealed a giant RHAA. An origin of the right hepatic artery was calcified and occluded and the left hepatic artery arose from the celiac trunk. Moreover, blood flow in a RHAA was visualized via collateral blood flow from the left hepatic artery in the late phase angiogram (Fig. 2). The aneurysm was indicated for operation because of impending rupture.

At operation, the aneurysm was exposed through a hokey-stick incision. The left hepatic artery, the common hepatic artery (CHA) and the gastroduodenal artery (GDA) were under control (Fig. 3A). We clamped CHA and GDA, and incised the aneurysm longitudinally. After removing the thrombus in the aneurysm, the collateral...
blood flow from the left hepatic artery was found at the bottom of the aneurysm (Fig. 3B). The collateral vessel was ligated at the inside of the aneurysm. Because intrahepatic flow was supplied from the left hepatic artery, we performed the aneurysmorrhaphy without revascularization of the right hepatic artery. Postoperative hemorrhage required reoperation on the 7th day after the first operation, 3 days after starting the anticoagulant therapy for Dor procedure. The bleeding point was the wall of the aneurysm, and we stopped the bleeding by using an electric knife and TachoSil® Tissue Sealing sheet (Takeda GmbH, Linz, Austria). The patient recovered from the reoperation without any major complications, and plasma levels of liver function were within normal limits during the whole period. Postoperative course was uneventful and the patient was well for 3 months after surgery.

**Discussion and Conclusion**

The HAA is the second most common visceral aneurysm following splenic artery aneurysm, accounting for 20% of all visceral aneurysms. Abbas et al. reported that HAA was identified in only 36 patients (0.002%) of about two million consecutive patients. Although HAA is rare, the incidence of rupture was 14%–80%, and the mortality was 21%–44%. Despite that all HAAs should be treated before rupture, the relationship between aneurysm size and risk for rupture is unclear. The patients with HAA of nonatherosclerotic origin (e.g. fibromuscular dysplasia, polyarteritis nodosa) should be treated before rupture.
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who is at good operative risk and has a life expectancy greater than 2 years, and HAA greater than 5 cm should generally undergo repair, embolization, or ligation. Even if HAA was thrombosed, we should considered operation at the initial visit of the patient.

We conclude that the HAA should be observed carefully even if it is thrombosed in CT. Furthermore, the HAA should be considered operation aggressively according to the size, and the selective angiography is useful at operation.

Disclosure Statement
All authors have no conflict of interest.

References